

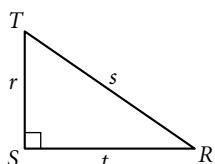
Name _____ Period _____ Date _____

Part A

Use the definitions of the three trigonometric ratios to find each answer. Simplify your answers.

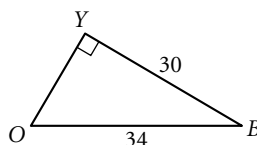
1. $\sin R =$ _____

$\cos R =$ _____



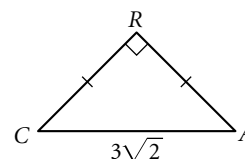
2. $\cos B =$ _____

$\tan B =$ _____



3. $\sin C =$ _____

$\tan C =$ _____



Part B

In Problems 1 and 2, round your answers to the nearest 0.0001.

1. $\sin 57^\circ \approx$ _____

2. $\cos 9^\circ \approx$ _____

In Problems 3 and 4, find the measure of each angle to the nearest degree.

3. $\sin A = 0.5447$ $m\angle A \approx$ _____

4. $\cos B = 0.0696$ $m\angle B \approx$ _____

Part C

Calculate each distance or angle.

1. A lighthouse is set 10 meters back from the edge of the shoreline, and its beacon is 52 meters above sea level. Lucy can see the beacon from her ship, and the angle of elevation is 18° . Her eyes are 12 meters above sea level. How far is the ship from the shoreline to the nearest meter?
2. Igor is flying a kite. He has let out 300 ft of kite string. The string makes an angle of 64° with the level ground. To the nearest foot, how high is his kite?
3. Julia wants to find the height of a redwood tree. She paces 73 steps from the base of the tree. Each step is 0.6 m. She finds the angle of elevation from the top of the tree to the ground where she is standing to be 65° . How tall is the tree to the nearest meter?
4. Air traffic controller Seymour Plains must quickly calculate the altitude of an incoming jet. He records the jet's angle of elevation as 8° . The jet signals that its land (horizontal) distance from the control tower is 74 km. Calculate the altitude of the jet to the nearest meter.
5. To the nearest degree, find the measure of $\angle B$ in $\triangle ABC$, given $m\angle A = 48^\circ$, $AC = 62$ cm, and $AB = 61$ cm.
6. To the nearest meter, find the length of side \overline{DE} in $\triangle DEF$, given $m\angle F = 54^\circ$, $DF = 70$ m, and $EF = 50$ m.

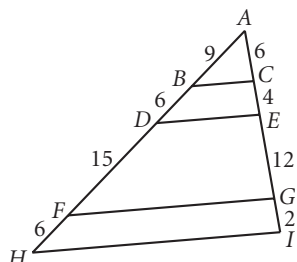
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Name _____ Period _____ Date _____

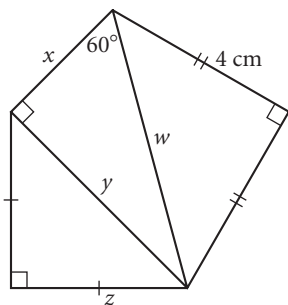
Mixed Review

1. Use the diagram below to identify each statement as true or false. For each false statement, explain why it is false.

- $\overline{BC} \parallel \overline{DE}$
- $\overline{BC} \parallel \overline{FG}$
- $\triangle ABC \sim \triangle AFG$
- $\triangle ADE \sim \triangle AHI$



2. Find exact values for w , x , y , and z .

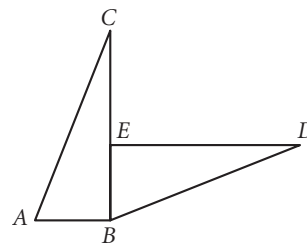


3. Quadrilateral $ABCD$ has vertices $A(-4, 0)$, $B(6, 10)$, $C(2, 10)$, and $D(-4, 4)$. What kind of quadrilateral is $ABCD$? Justify your answer.

4. Write a paragraph or flowchart proof.

Given: $\angle ABC$ and $\angle BED$ are right angles, $\overline{AB} \cong \overline{BE}$, $\overline{AC} \cong \overline{BD}$

Show: $\triangle ABC \cong \triangle BED$



5. A right cone with height 4 in. and base radius 3 in. is dilated by scale factor $\frac{1}{2}$. Find the surface area and the volume of the dilated cone. Give both answers in terms of π .

6. \overrightarrow{PT} is a tangent to circle O , \overline{MA} is a midsegment of $\triangle PTO$.

$$m\widehat{TA} = 60^\circ, m\widehat{BT} = 90^\circ, OT = 6 \text{ cm.}$$

$$OP = \underline{\hspace{2cm}}$$

$$TM = \underline{\hspace{2cm}}$$

$$AE = \underline{\hspace{2cm}}$$

$$BT = \underline{\hspace{2cm}}$$

$$m\angle TKO = \underline{\hspace{2cm}}$$

